

Trend Study 25C-31-03

Study site name: Parker Mtn Aerator.

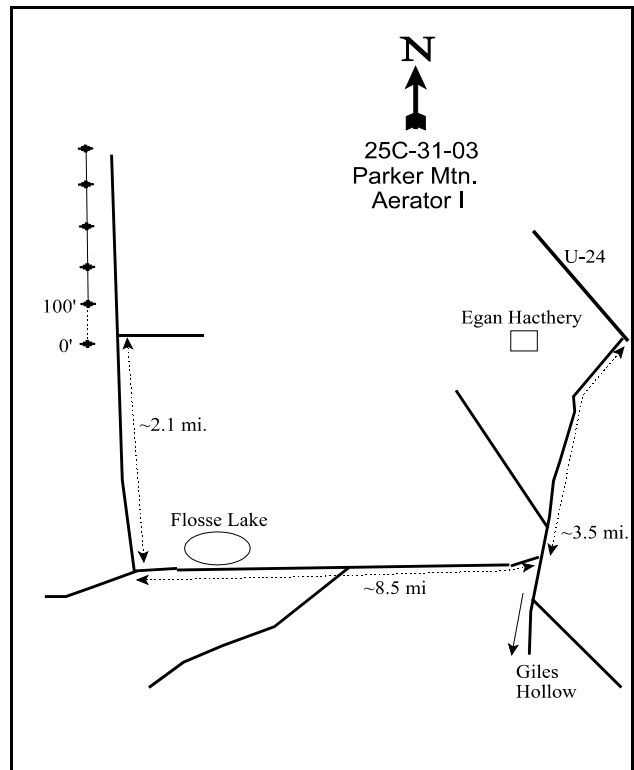
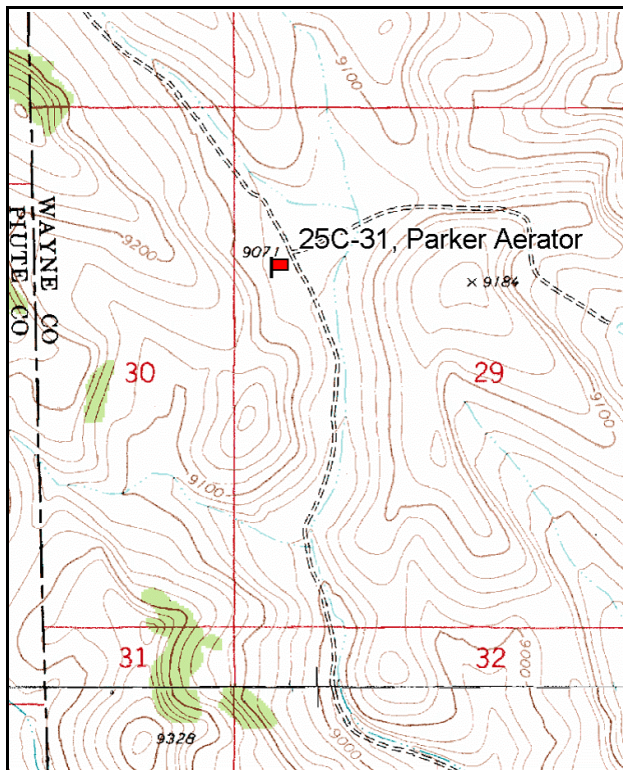
Vegetation type: Mtn. Big Sagebrush.

Compass bearing: frequency baseline 330 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

On U-24 south of Bicknell, turn west on Bicknell Cir. Drive 3.5 miles to a left hand turn (you will pass the Egan Fish Hatchery). Drive for 8.5 miles on the main road to a right turn going north. Drive 2.1 miles to a road going off to the right (east). Park here and walk 64 paces at 200 degrees magnetic to the 0ft stake. The 0ft stake is marked by browse tag # 158.



Map Name: Jakes Knoll

Diagrammatic Sketch

Township 29S, Range 1E, Section 30

GPS: NAD 27, UTM 12S 4234938 N, 426952 E

DISCUSSION

Parker Mountain Aerator - Trend Study No. 25C-31

This is a new trend study established on Parker Mountain to monitor a mountain big sagebrush thinning treatment to improve sage grouse summer and brooding habitat. The site samples a sagebrush flat with a slight eastern aspect and a slope of about 3%. Elevation is 8,900 feet. The flat was treated with a meadow aerator which thinned the sagebrush. This area is used yearlong by antelope and during the summer by sage grouse. Cattle grazing also occurs during the summer and heavy grazing was evident prior to study site establishment on Sept 10th of 2003. Pellet group data estimated 13 antelope and 8 cow days use/acre (33 ddu/ha and 20 cdu/ha). Eight adult sage grouse were flushed from the site during the first reading.

Soil at the site is deep with an effective rooting depth of over 15 inches. Soil texture is a loam which is neutral in reaction. There is little rock or pavement on the surface or within the profile. Protective ground cover is good leaving only 17% cover of bare ground. Erosion is minimal due to the gentle terrain combined with the protective ground cover. Litter cover is high due to the aerator treatment which thinned sagebrush and left litter in place.

The site supports a thick stand of mountain big sagebrush. The aerator treatment thinned the population, especially the larger plants. Density of the surviving sagebrush was estimated at 7,100 plants/acre. Seedlings and young were numerous and mature plants numbered 3,420 plants/acre. These surviving mature sagebrush are short in stature, averaging only 12 inches in height. About 10% of the mature plants sampled had reduced vigor due to the treatment. Decadent plants accounted for 35% of the population with a density of 2,520 plants/acre. Sixty-seven percent of the decadent plants sampled had reduced vigor due to the treatment, and another 23% were classified as dying (>50% crown death). Some of the mature and decadent sagebrush sampled will likely die because of the treatment, but young plants appear to be numerous enough to maintain the stand. This area will probably return to a sagebrush dominated community quickly. A more aggressive sagebrush thinning method should have been used in order to open the meadow community longer. Average cover of sagebrush was estimated at about 12%. The only other shrubs found on the site include a few rubber rabbitbrush, Wood's rose, and snowberry.

The herbaceous understory is diverse but not particularly productive. Ten perennial grasses were found on the site. However 2 species, *Carex* and Letterman needlegrass, provided 57% of the total grass cover. Thickspike wheatgrass was also fairly common, but most other species occur sporadically. Most grasses had been heavily utilized which made identification difficult for some species. Total grass cover was estimated at only 8%. Forbs produce nearly as much cover as the grasses. Twenty forb species were encountered on the site. Silky lupine and a Penstemon provided 67% of the total forb cover. Most of the other forbs found on the site are low growing species. Penstemon was heavily utilized where found, but the lupine was untouched. Total herbaceous cover was estimated at 15%.

2003 APPARENT TREND ASSESSMENT

Soil conditions are good on this site. Protective ground cover is high resulting in minimal erosion. The sagebrush stand was thinned by a meadow aerator. Total sagebrush cover was estimated at 12% using the line-intercept canopy cover method. However, sagebrush density is still very high at 7,100 plants/acre. The surviving plants average only 12 inches in height. Thirty-five percent of the population was classified as decadent with 85% of those plants displaying poor vigor due to the treatment. Young plants are numerous, accounting for 16% of the population. Seedlings are also abundant. Age class analysis suggests that this population will increase and likely quickly return to a dense stand of sagebrush, especially with continued heavy livestock grazing. A more aggressive sagebrush thinning treatment should have been used and livestock grazing should be eliminated for a few years to prolong the treatment effect. The herbaceous understory is diverse but not particularly abundant. Total grass and forb cover average only about 15%. The most abundant grasses include a *Carex*, Letterman needlegrass, and thickspike wheatgrass. Forbs are dominated by silky lupine and a penstemon. Heavy livestock use of the herbaceous plants has obviously reduced production.

HERBACEOUS TRENDS --

Management unit 25C, Study no: 31

T y p e	Species	Nested Frequency	Average Cover %
		'03	'03
G	Agropyron dasystachyum	99	.92
G	Carex spp.	231	2.66
G	Festuca ovina	12	.12
G	Poa fendleriana	23	.22
G	Poa pratensis	32	.52
G	Sitanion hystrix	16	.31
G	Stipa columbiana	24	.95
G	Stipa comata	5	.30
G	Stipa lettermani	98	1.82
Total for Annual Grasses		0	0
Total for Perennial Grasses		540	7.84
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F	Antennaria parvifolia	8	.18
F	Androsace septentrionalis (a)	58	.38
F	Arenaria fendleri	1	.00
F	Astragalus convallarius	5	.04
F	Astragalus spp.	24	.16
F	Chenopodium leptophyllum(a)	3	.01
F	Cirsium spp.	10	.24
F	Descurainia pinnata (a)	12	.03
F	Eriogonum spp.	3	.00
F	Eriogonum racemosum	20	.23
F	Gayophytum ramosissimum(a)	50	.22
F	Hymenoxys richardsonii	4	.06
F	Lupinus argenteus	89	3.67
F	Penstemon spp.	54	.93
F	Phlox longifolia	35	.08
F	Potentilla concinna	5	.04
F	Polygonum douglasii (a)	8	.05
F	Potentilla gracilis	22	.24
F	Senecio multilobatus	8	.04
F	Taraxacum officinale	19	.20
Total for Annual Forbs		131	0.69
Total for Perennial Forbs		307	6.16
Total for Forbs		438	6.86

BROWSE TRENDS --

Management unit 25C, Study no: 31

T y p e	Species	Strip Frequency	Average Cover %
		'03	'03
B	Artemisia tridentata vaseyana	78	12.98
B	Rosa woodsii	3	.03
B	Symphoricarpos oreophilus	7	.06
Total for Browse		88	13.08

CANOPY COVER, LINE INTERCEPT --

Management unit 25C, Study no: 31

Species	Percent Cover
	'03
Artemisia tridentata vaseyana	11.80

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 25C, Study no: 31

Species	Average leader growth (in)
	'03
Artemisia tridentata vaseyana	2.5

BASIC COVER --

Management unit 25C, Study no: 31

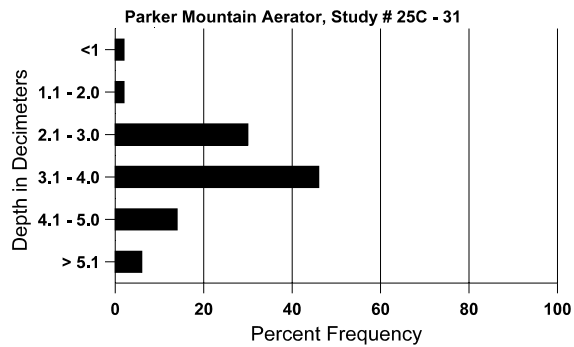
Cover Type	Average Cover %
	'03
Vegetation	25.99
Rock	1.41
Pavement	.74
Litter	63.22
Cryptogams	.08
Bare Ground	16.86

SOIL ANALYSIS DATA --

Management unit 25C, Study no: 31, Study Name: Parker Mountain Aerator

Effective rooting depth (in)	Temp °F (depth)	pH	% sand	% silt	% clay	% OM	PPM P	PPM K	ds/m
15.5	43.4 (17.1)	6.7	44.6	32.7	22.7	2.3	37.7	838.4	0.4

Stoniness Index



PELLET GROUP DATA --

Management unit 25C, Study no: 31

Type	Quadrat Frequency	Days use per acre (ha)
	'03	'03
Rabbit	72	-
Grouse	5	-
Elk	1	-
Deer/Antelope	7	13 (33)
Cattle	3	8 (20)

BROWSE CHARACTERISTICS --

Management unit 25C, Study no: 31

		Age class distribution (plants per acre)					Utilization				
Y	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Artemisia tridentata vaseyana											
03	7100	1740	1160	3420	2520	-	.56	0	35	37	12/17
Chrysothamnus nauseosus											
03	0	20	-	-	-	-	0	0	-	0	-/-
Rosa woodsii											
03	120	-	-	120	-	-	0	0	-	0	6/7
Symphoricarpos oreophilus											
03	200	-	40	120	40	-	0	20	20	10	9/11